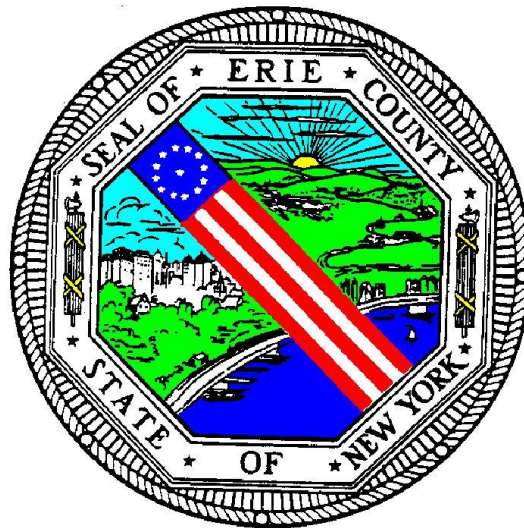


UB Center for Industrial Effectiveness



School of Engineering and Applied Sciences

EARLY INTERVENTION PROJECT



PROJECT TEAM MEMBERS



Dr. Anthony Billittier- Champion
Leon Nadler- Green Belt Candidate
Mary Martin- Process Owner
Pat Ruffino- Deputy Commissioner
Mike Gould- Business Manager
Bill O'Meara- Assistant Director
Dick Planavsky- Budget Representative
Bill Carey- Black Belt
Sandra Sweeney- Yellow Belt



ERIE COUNTY EARLY INTERVENTION PROGRAM



- Division of Services for Children with Special Needs is responsible for Pre-School and Early Intervention Programs.
- State mandated program serves infants and toddlers with development delays and their families.
- Children enter the program through referrals from parents, pediatricians, daycare providers, Department of Social Services and hospital intensive care units.



ERIE COUNTY EARLY INTERVENTION PROGRAM



- Children/families are assigned a case manager who is responsible for formulating and implementing an individualized plan .
- A variety of therapies including physical, occupational, and speech therapy are provided in group and individual settings (home and daycare)
- Anticipated 2009 program expense:
 - >\$13,000,000
 - State pays 70% and the County 30%
 - Represents a 12% increase from 2008



PROJECT CHARTER



Strategic Goal/Business Case:

Improve service delivery by implementing a family centered methodology that targets parent involvement which could result in more efficient service delivery, increased quality of services and parent/ caregiver satisfaction with less direct services.

Problem Statement:

The Erie County Department of Health Early Intervention Program authorizes and pays for services to infants and toddlers aged 0-2 with developmental delays or disabilities. Traditional clinical based service models were not the intention for the program and increases in these types of service models have not resulted in increased quality of service or increased parent satisfaction.

Project Objective:

This Project will modify the methodology by which services are delivered making the service delivery more efficient while maintaining effectiveness and increasing quality and consumer satisfaction.



PROJECT CHARTER



Benefits/Savings Potential:

Increase parent/caregiver involvement and satisfaction while simultaneously increasing efficiency in service delivery and adherence to family centered practices.

Scope/Boundaries:

Activities are limited to the Early Intervention program services.
Transportation, service coordination, and evaluation costs are excluded

Timeline:

Begin Define Phase December 2008

Control Phase June 2009



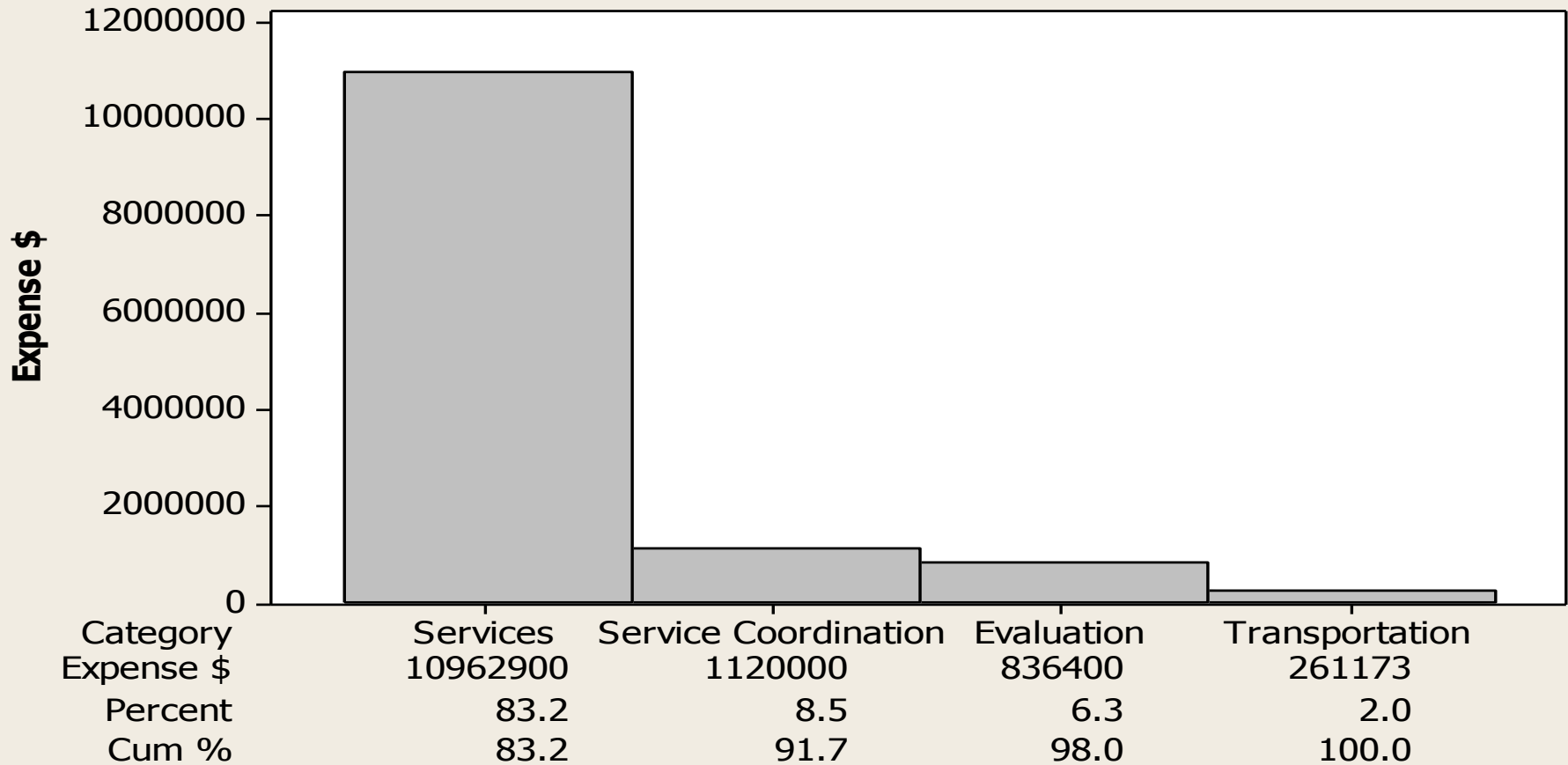


Activities are limited to the Early Intervention program services.
Transportation, service coordination, and evaluation services are excluded.





2008 Early Intervention Program



GOAL STATEMENT



Improve service delivery by implementing a family centered methodology that targets parent involvement which could result in more efficient service delivery, increased quality of services and parent/ caregiver satisfaction with less direct services.





Problem Statement

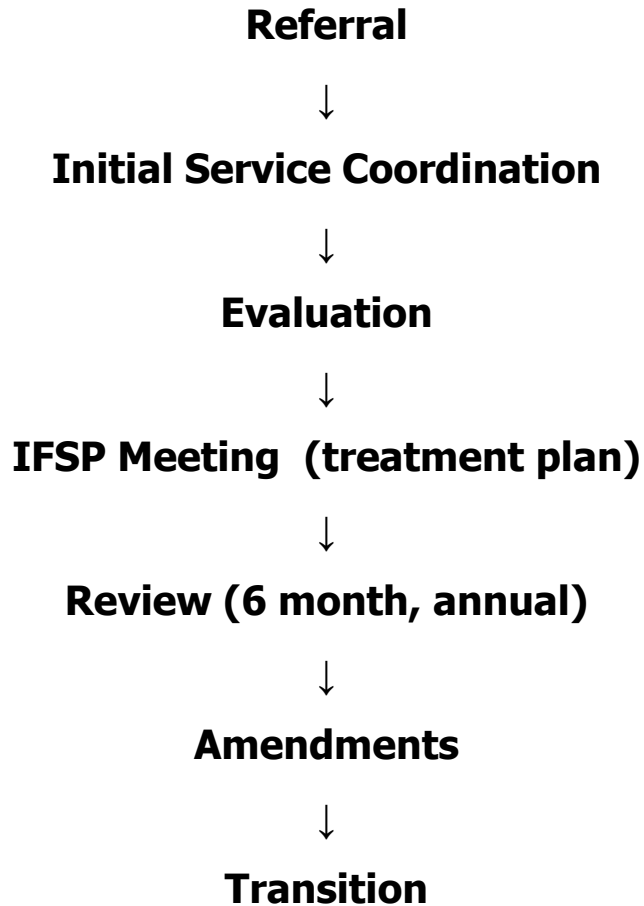
The Erie County Department of Health has provided traditional clinical services at increased levels over the past 15 years.

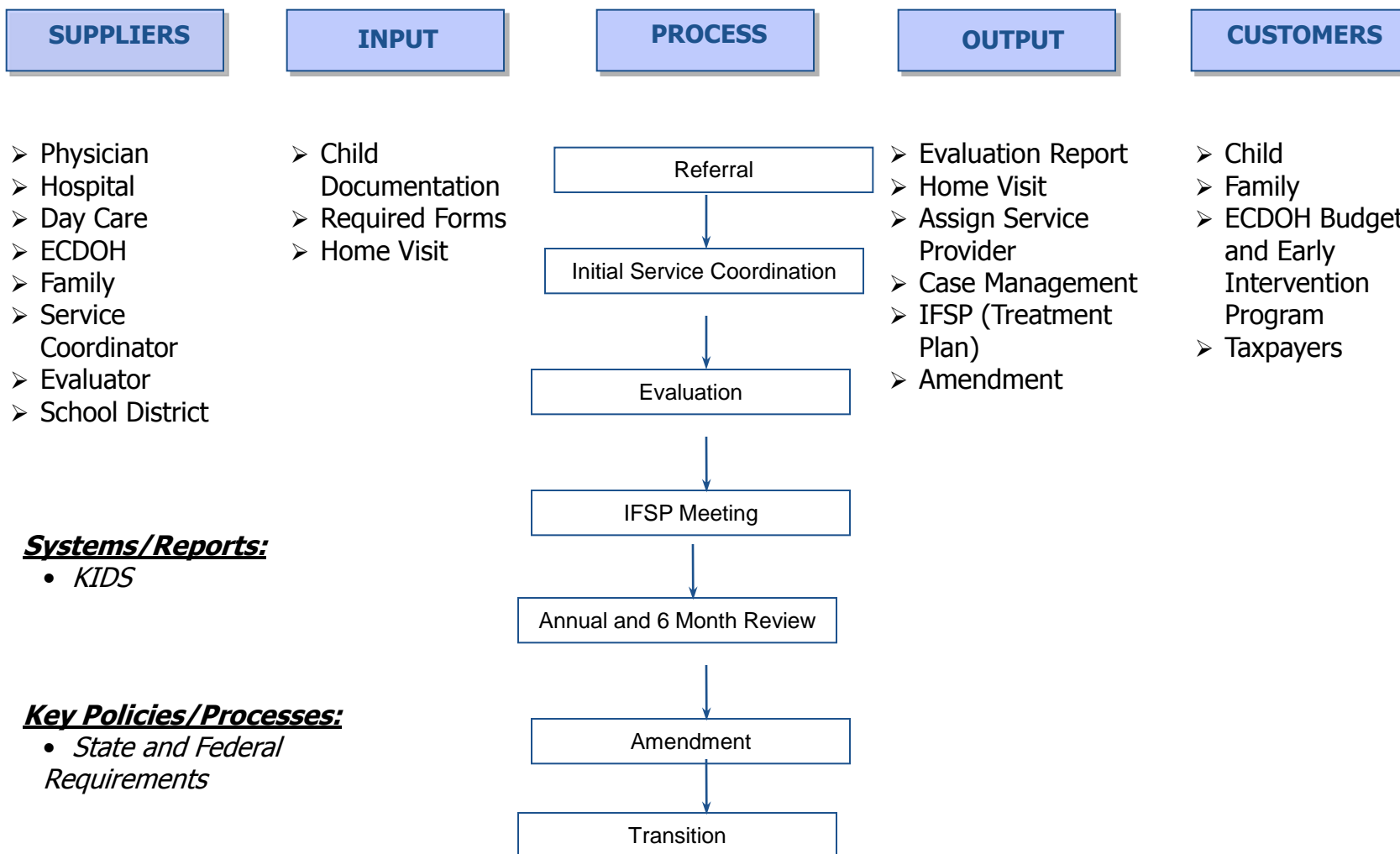
Quality of services and parent satisfaction have not increased commensurate.





High Level Process Map





Systems/Reports:

- KIDS

Key Policies/Processes:

- State and Federal Requirements



[illegible]



County has little or no control:

- Referral
- Initial service coordination
- Evaluation
- Individual family service plan
- Six month and annual review
- Transition



PROCESS FLOW DIAGRAM



County has total control:

- Assign service provider
- Amendment process





The Team Reviewed Available Data:

- Collect Data from KIDS system
 - All services for the period Jan-August 2008
 - 24 Agencies
 - 1800 Clients
 - > 100,000 Services
- Sample Amendments by reviewing all received in February 2009





- The New York State KIDS program was utilized for detailed payment data.
- All payments for the service dates January through August 2008 were extracted into excel files with the following elements:
 - Vendor Number and Name
 - Child Name
 - Birth Date
 - Service Type
 - Service Method
 - Service Location
 - Service Date
 - Amount Paid
- The 24 reports were consolidated into one master Excel Spread sheet.





Primary Metric = Services per week





- Made photo copies of all Requests for Early Intervention IFSP Amendment Forms for the month of Feb 2009.
- Determined that forms did not contain enough data to enable any meaningful analysis .
- Developed a plan for a new Access Database which would capture the desired data elements.
- Erie County Division Of Information and Support designed the data base and reports.





- Redesign the Amendment Request Form.
- Data collection will begin April 1, 2009.
- The results of this tracking system will be used to compare agencies and therapist performance.





Measure Phase

AMENDMENT TRACKING SYSTEM

Microsoft Access - [Health Department Special Needs Division - Amendments]

File Edit View Insert Format Records Tools Window Help

Type a question for help

MS Sans Serif 12 B I U

ID 1

Date 3/16/2009

Coordinator Name name2

Agency Name Agency1

Therapist Name Therapist1

Current Level Of Service Level1

ServiceTime in Months 411

Requested Change Change One

Approved Change Approved One

Record: 1 of 4

Form View

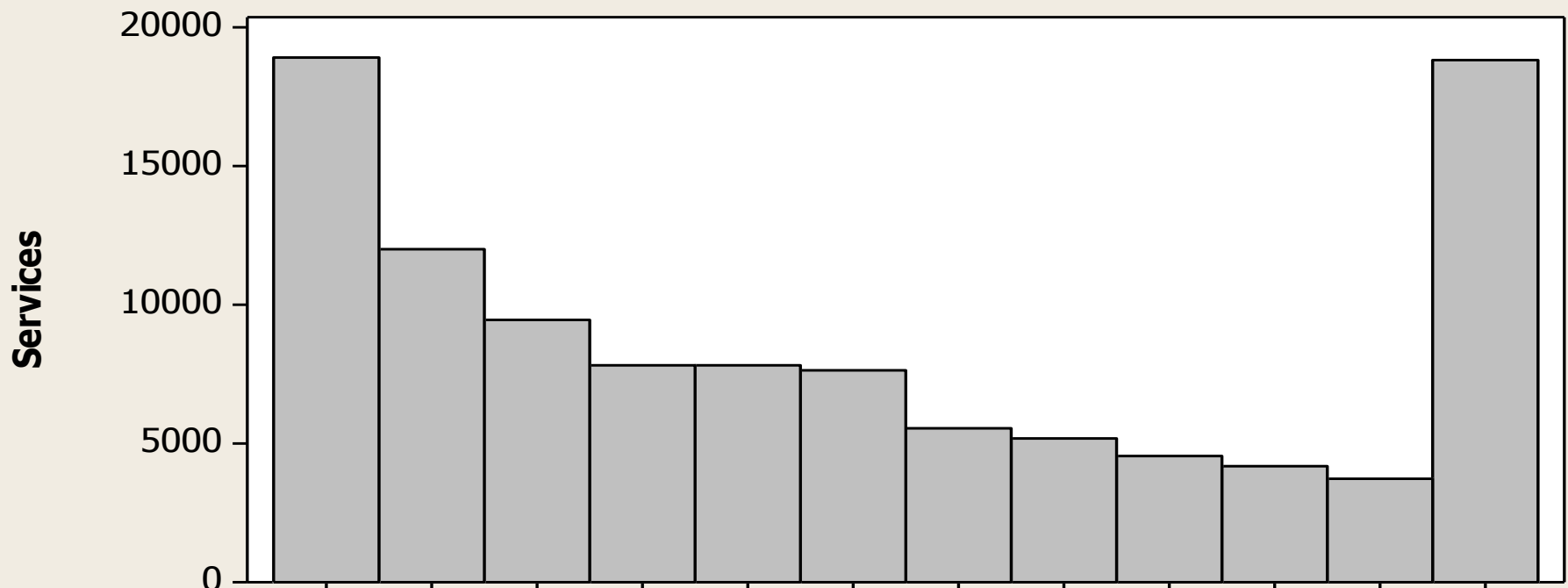
start 2 Microsoft O... Amendments 3 Microsoft O... 2:07 PM





GRAPHS

Pareto Chart of Vendor



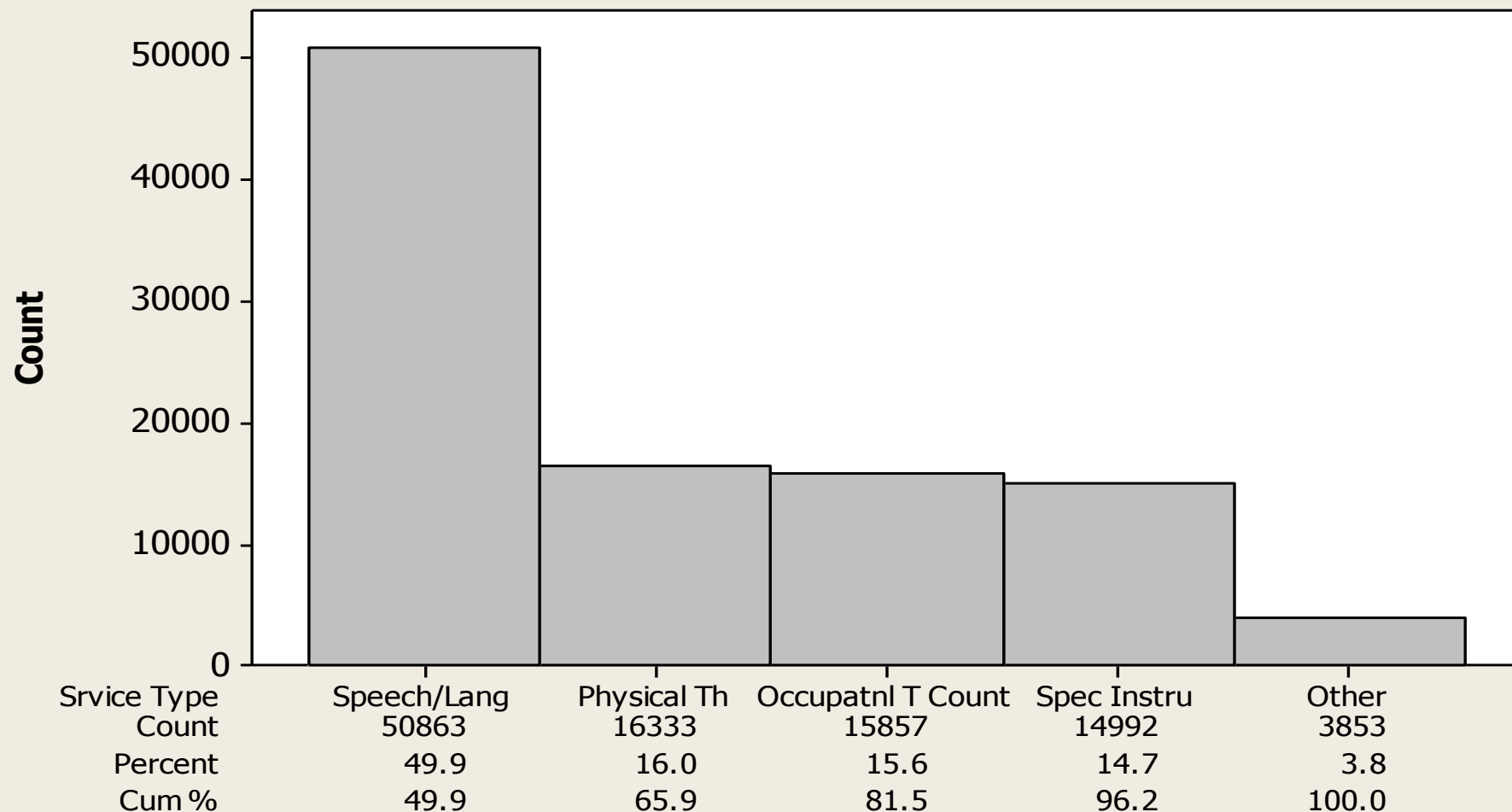
Vendor	107530	106015	102327	114653	109950	100989	107000	111589	107132	111600	106002	Other
Services	18953	12054	9501	7827	7790	7665	5538	5174	4504	4222	3696	18845
Percent	17.9	11.4	9.0	7.4	7.4	7.2	5.2	4.9	4.3	4.0	3.5	17.8
Cum %	17.9	29.3	38.3	45.7	53.1	60.3	65.5	70.4	74.7	78.7	82.2	100.0





GRAPHS

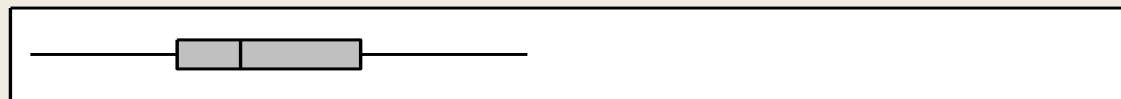
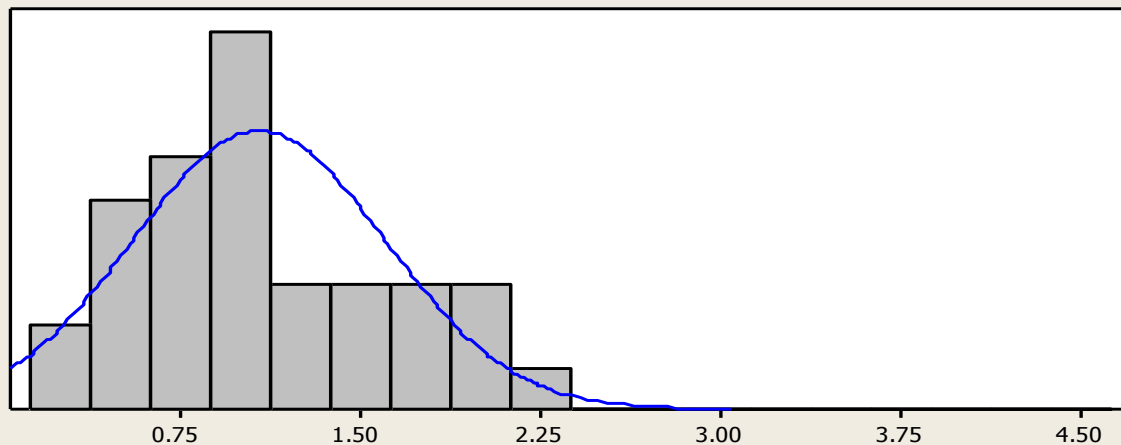
Number of Services



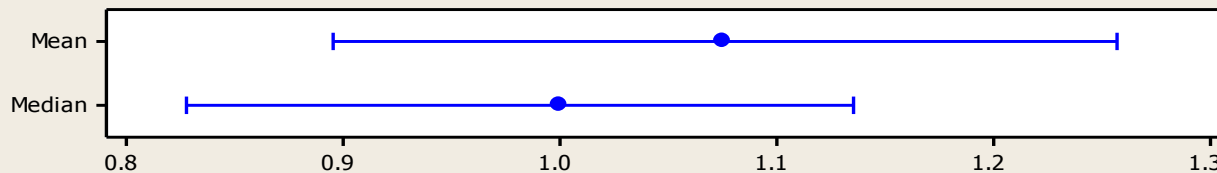


Summary for Service/week Physical Therapy

Vendor = 101027



95% Confidence Intervals



Anderson-Darling Normality Test

A-Squared	0.59
P-Value	0.117

Mean	1.0769
StDev	0.5271
Variance	0.2778
Skewness	0.500087
Kurtosis	-0.444394
N	35

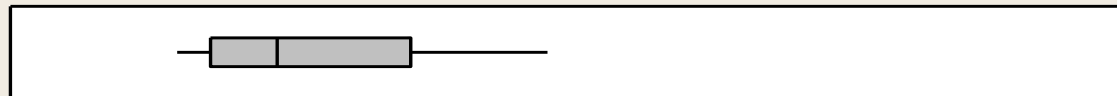
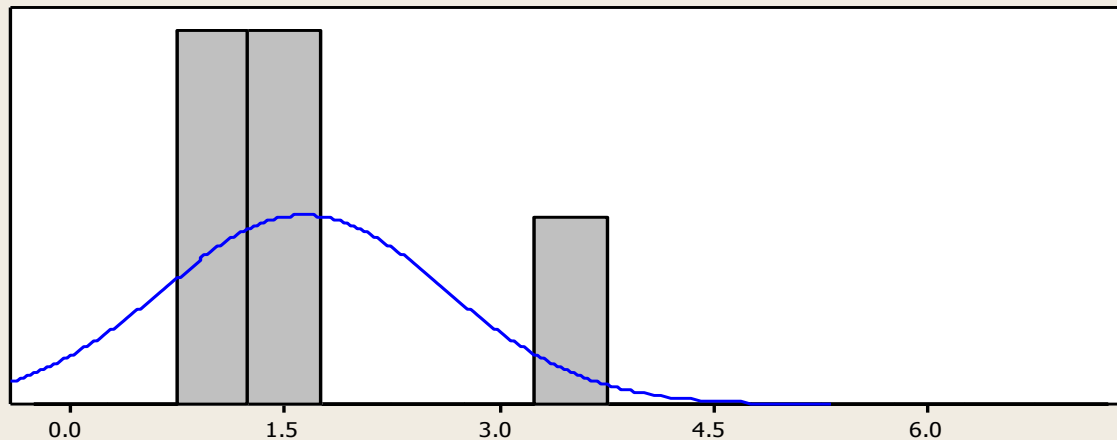
Minimum	0.1300
1st Quartile	0.7300
Median	1.0000
3rd Quartile	1.5000
Maximum	2.1900

95% Confidence Interval for Mean	
0.8958	1.2579
95% Confidence Interval for Median	
0.8283	1.1370
95% Confidence Interval for StDev	
0.4264	0.6906

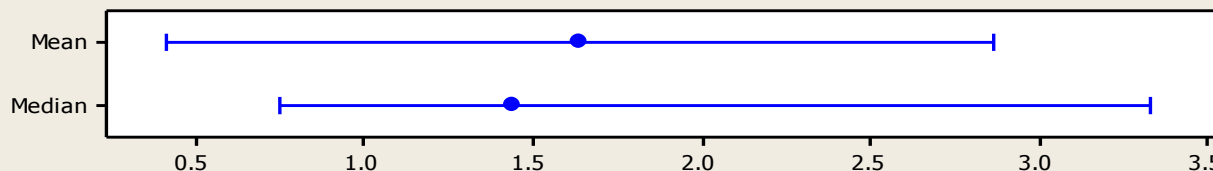




Summary for Service/week Spec Instr Vendor = 114873



95% Confidence Intervals



Anderson-Darling Normality Test

A-Squared	0.59
P-Value	0.056

Mean	1.6360
StDev	0.9880
Variance	0.9761
Skewness	1.76213
Kurtosis	3.65466
N	5

Minimum	0.7500
1st Quartile	0.9850
Median	1.4400
3rd Quartile	2.3850
Maximum	3.3300

95% Confidence Interval for Mean	
0.4092	2.8628

95% Confidence Interval for Median	
0.7500	3.3300

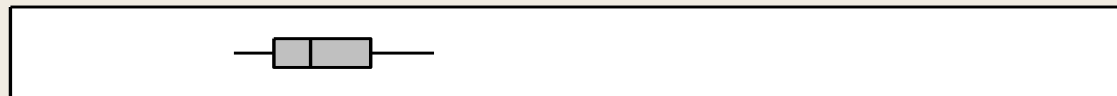
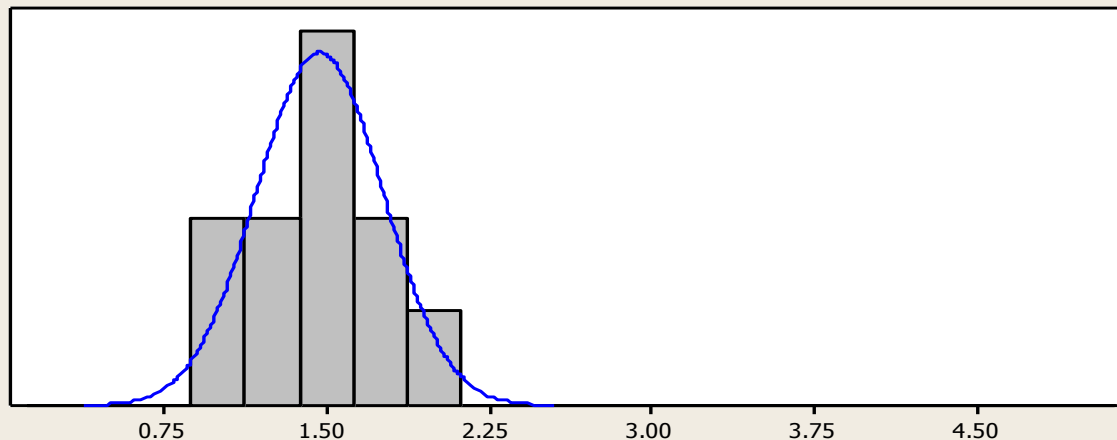
95% Confidence Interval for StDev	
0.5919	2.8391



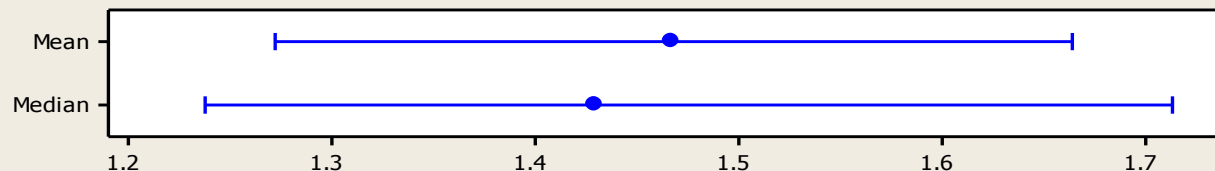


Summary for Service/week Occ T

Vendor = 110188



95% Confidence Intervals



Anderson-Darling Normality Test

A-Squared	0.24
P-Value	0.718

Mean	1.4682
StDev	0.2913
Variance	0.0849
Skewness	0.499982
Kurtosis	-0.332060
N	11

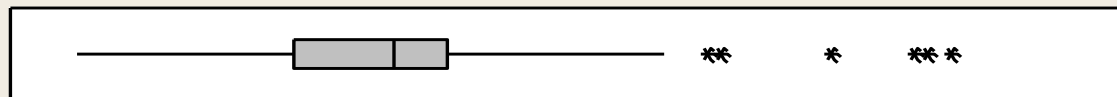
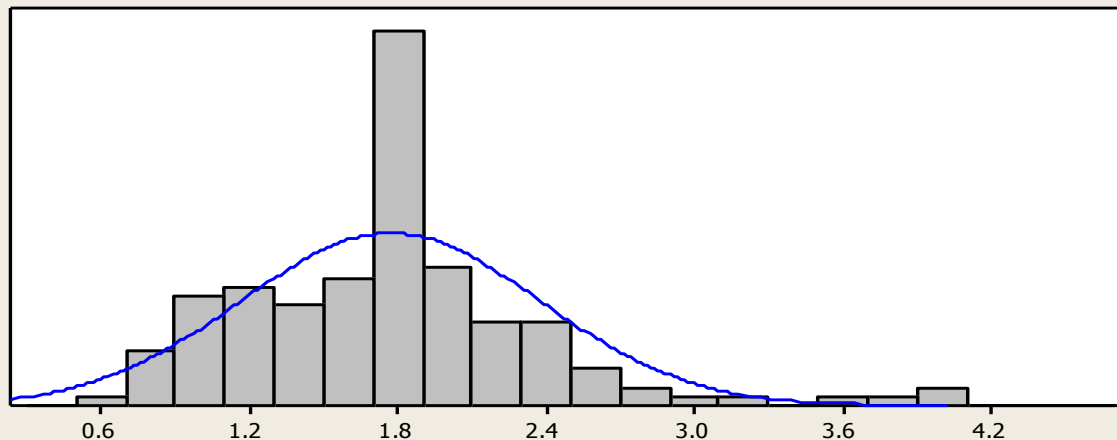
Minimum	1.0700
1st Quartile	1.2500
Median	1.4300
3rd Quartile	1.7000
Maximum	2.0000

95% Confidence Interval for Mean	
1.2725	1.6639
95% Confidence Interval for Median	
1.2385	1.7132
95% Confidence Interval for StDev	
0.2035	0.5112

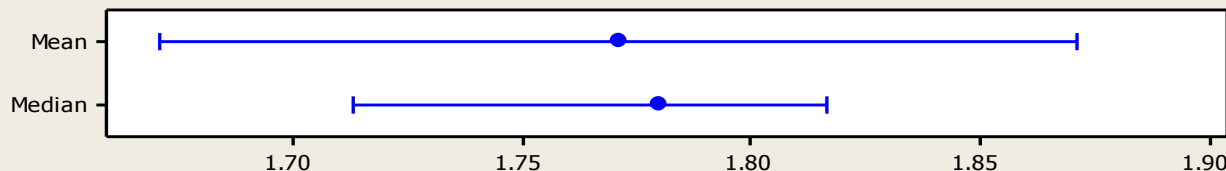




Summary for Service/week Speech Lang Vendor = 109950



95% Confidence Intervals



Anderson-Darling Normality Test

A-Squared 2.17
P-Value < 0.005

Mean 1.7713
StDev 0.6054
Variance 0.3665
Skewness 1.06470
Kurtosis 2.60390
N 143

Minimum 0.5000
1st Quartile 1.3800
Median 1.7800
3rd Quartile 2.0000
Maximum 4.0400

95% Confidence Interval for Mean
1.6713 1.8714

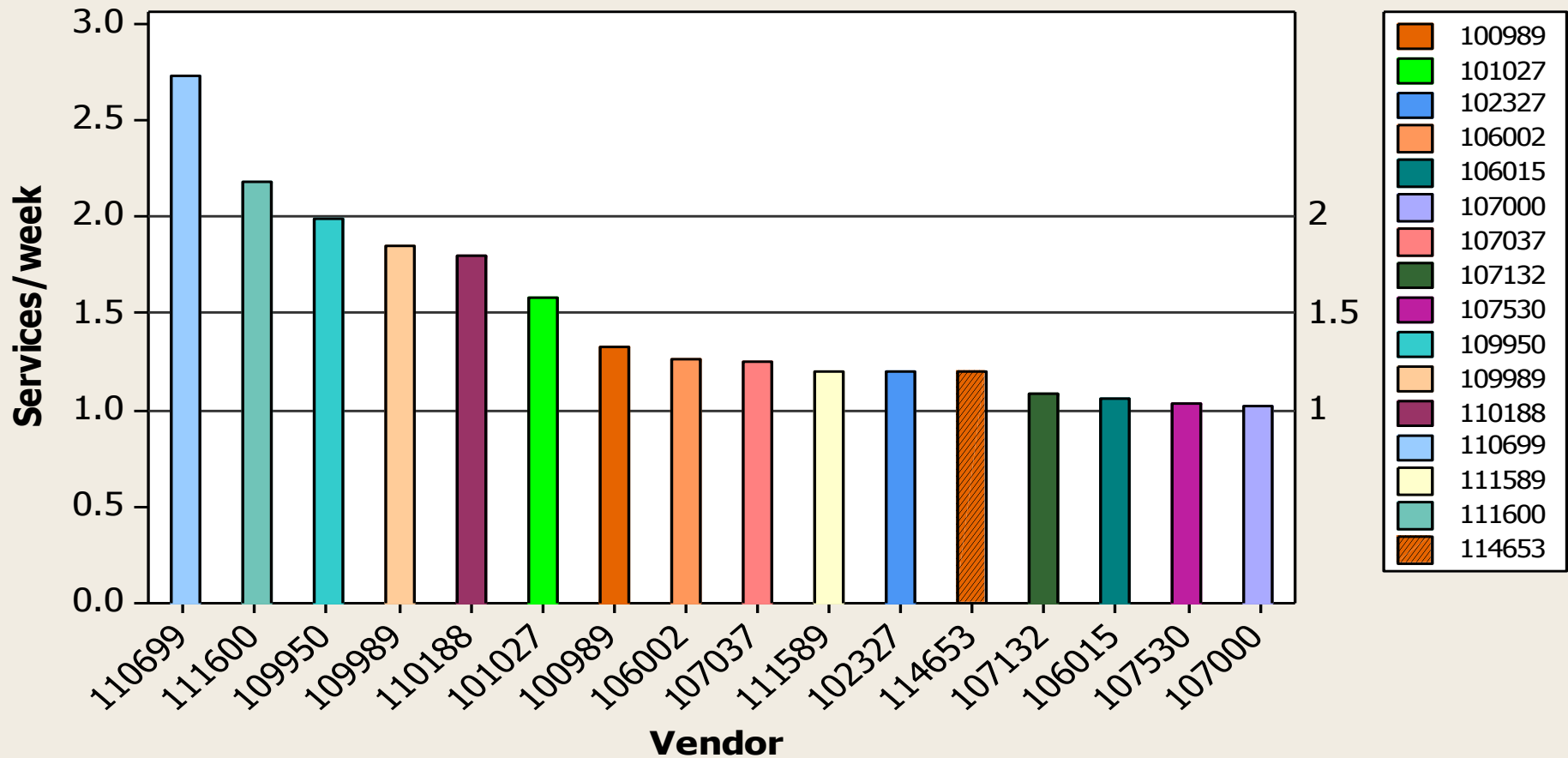
95% Confidence Interval for Median
1.7131 1.8169

95% Confidence Interval for StDev
0.5424 0.6850



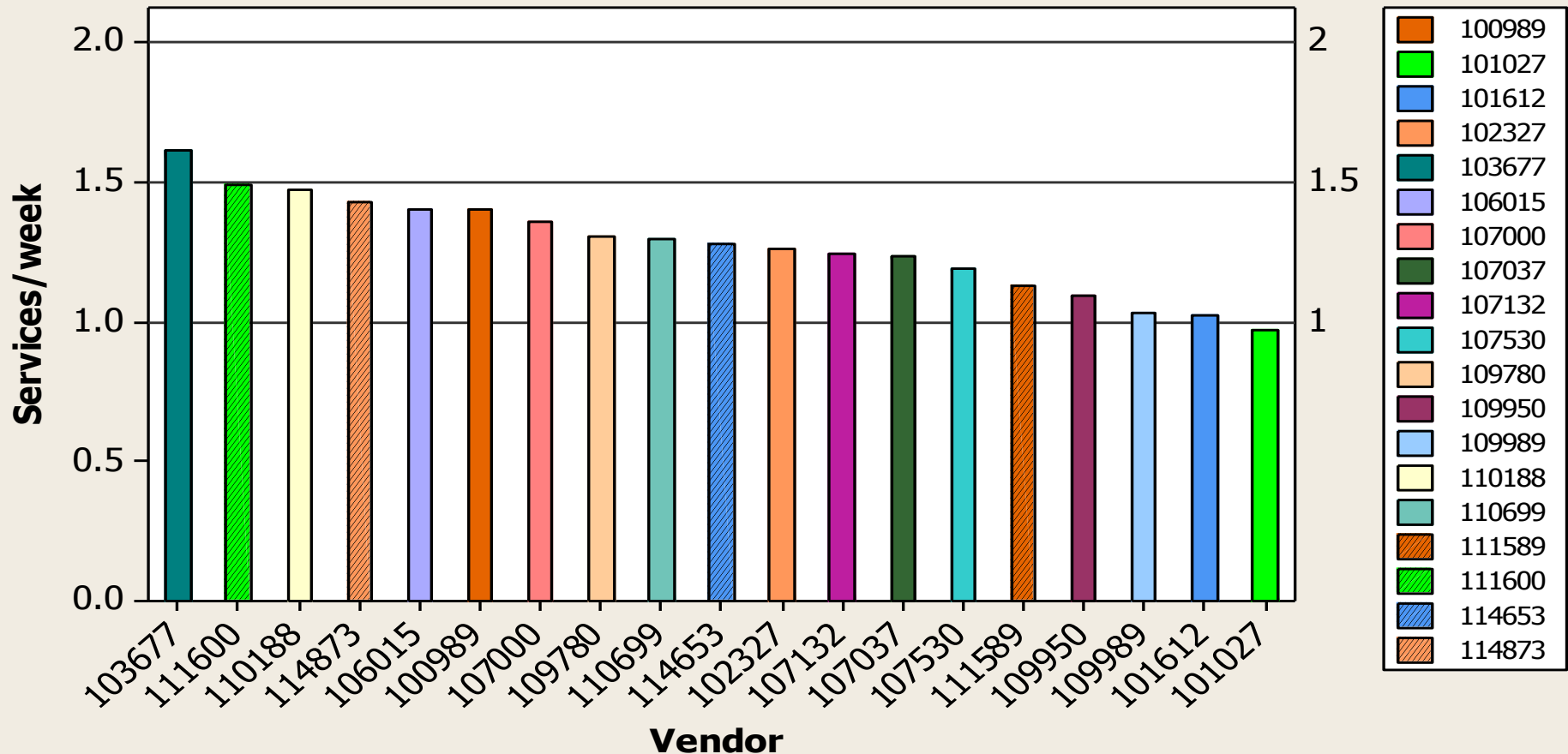


Special Instruction 6+ children



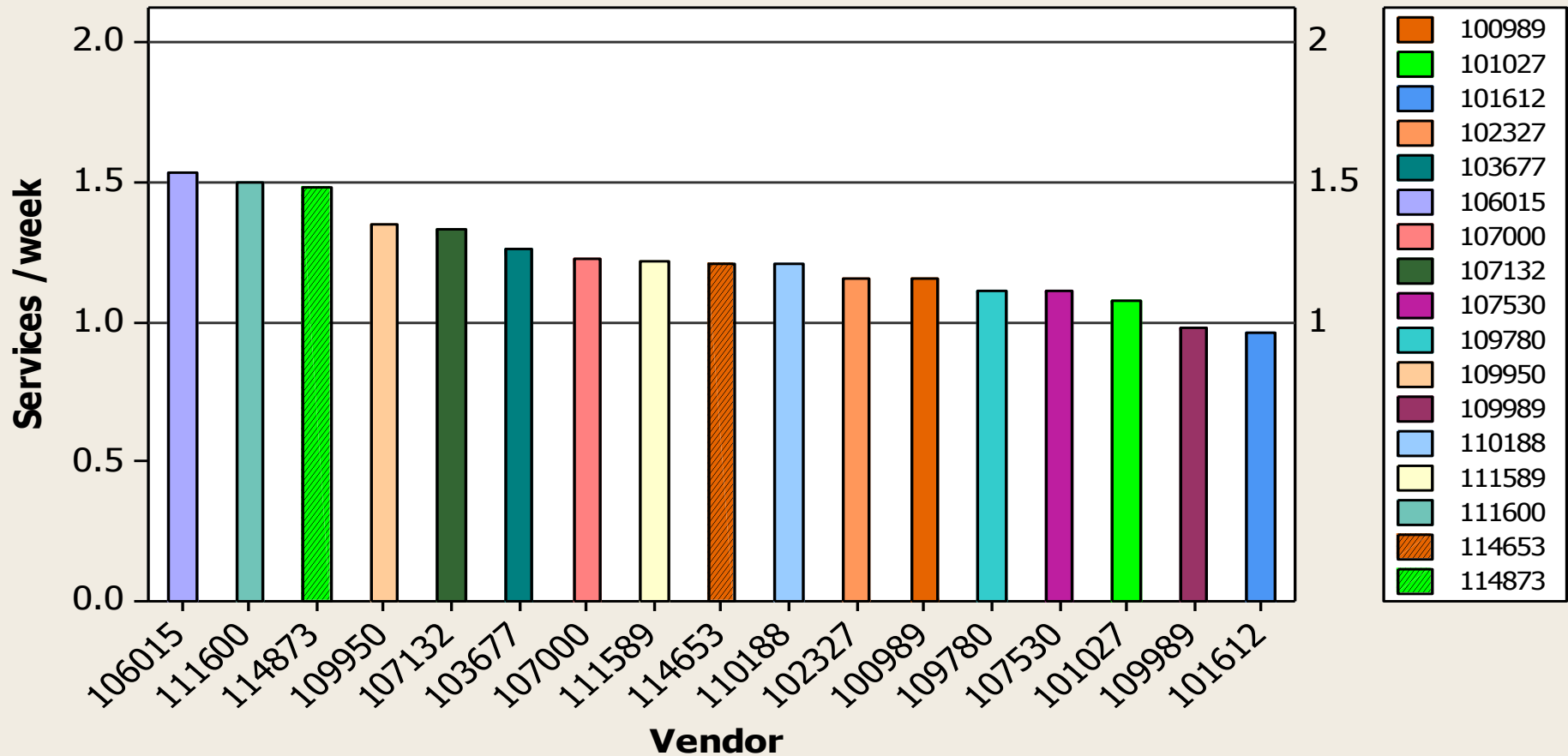


Occupational Therapy 6+ children



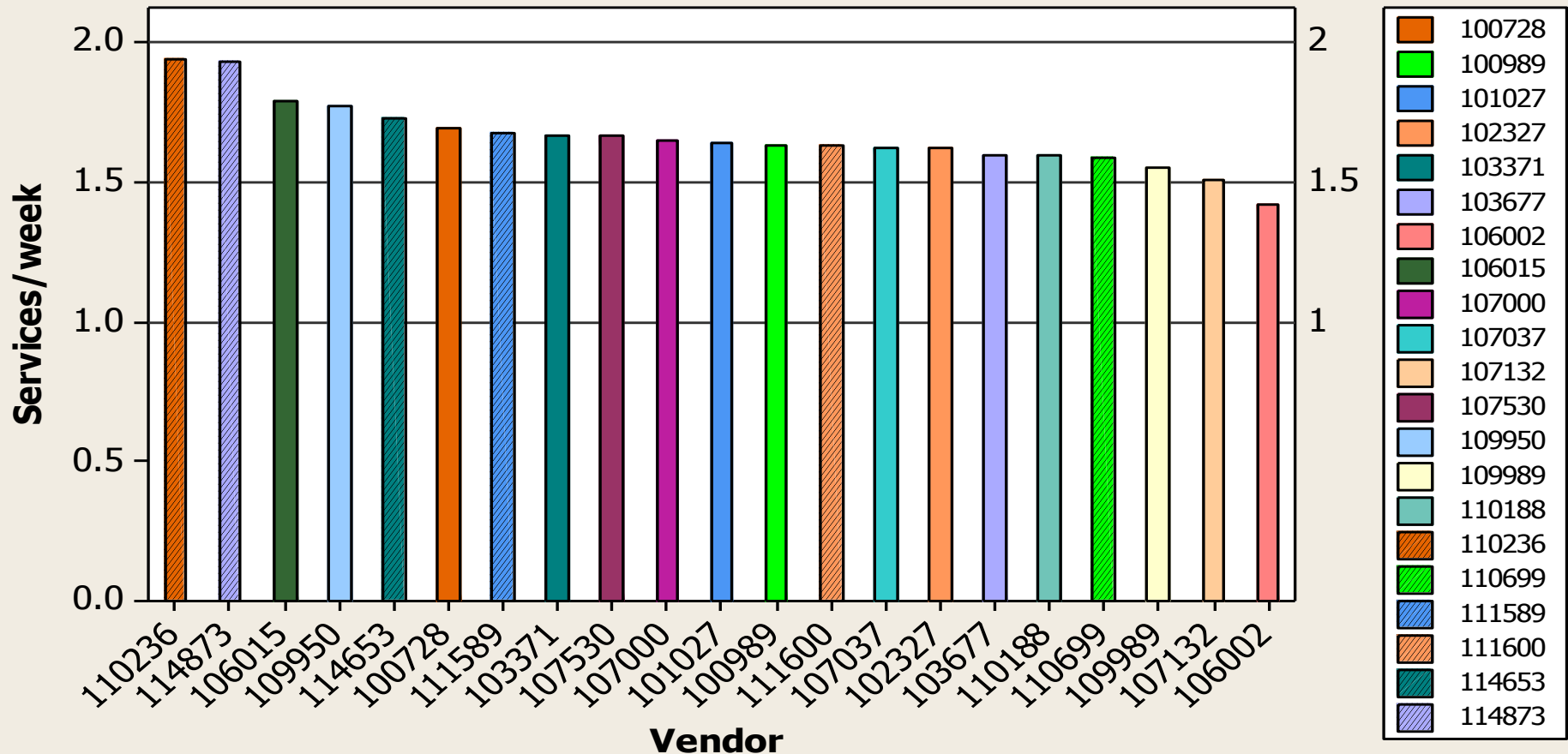


Physical Therapy 6+ children





Speech Language Therapy 6+ children



CHALLENGE DATA MEASUREMENT



The available data was evaluated by the Team and it was determined to be complete and accurate.





10

10 One-way ANOVA: Service/week versus Vendor Occupational Therapy

Source	DF	SS	MS	F	P
Vendor	21	11.582	0.552	1.41	0.105
Error	623	243.411	0.391		
Total	644	254.993			

10 S = 0.6251 R-Sq = 4.54% R-Sq(adj) = 1.32%

10 Individual 95% CIs For Mean Based on Pooled StDev

Level	N	Mean	StDev	95% CI
100989	22	1.4009	0.5972	(---*---)
101027	11	0.9700	0.6903	(----*----)
1010612	8	1.0188	0.5290	(-----*-----)
10102327	79	1.2594	0.6186	(-*)
10103677	13	1.6062	0.5572	(-----*-----)
10106002	5	0.7580	0.6335	(-----*-----)
10106015	55	1.4009	0.6806	(-*--)
10107000	35	1.3569	0.7308	(---*--)
10107037	31	1.2358	0.8277	(---*--)
10107132	32	1.2363	0.5710	(---*--)
10107530	145	1.1890	0.5720	(-*)
10109780	15	1.3040	0.5948	(-----*-----)
10109950	37	1.0951	0.4456	(--*--)
10109989	14	1.0286	0.4508	(-----*-----)
10110188	11	1.4682	0.2913	(-----*-----)
10110236	3	1.2000	0.5766	(-----*-----)
10110580	2	1.5700	0.1838	(-----*-----)
10110699	11	1.2955	0.5928	(-----*-----)
10111589	6	1.1283	0.3551	(-----*-----)
10111600	33	1.4842	1.0228	(---*--)
10114653	57	1.2744	0.4853	(-*--)
10114873	20	1.4220	0.5601	(-----*-----)

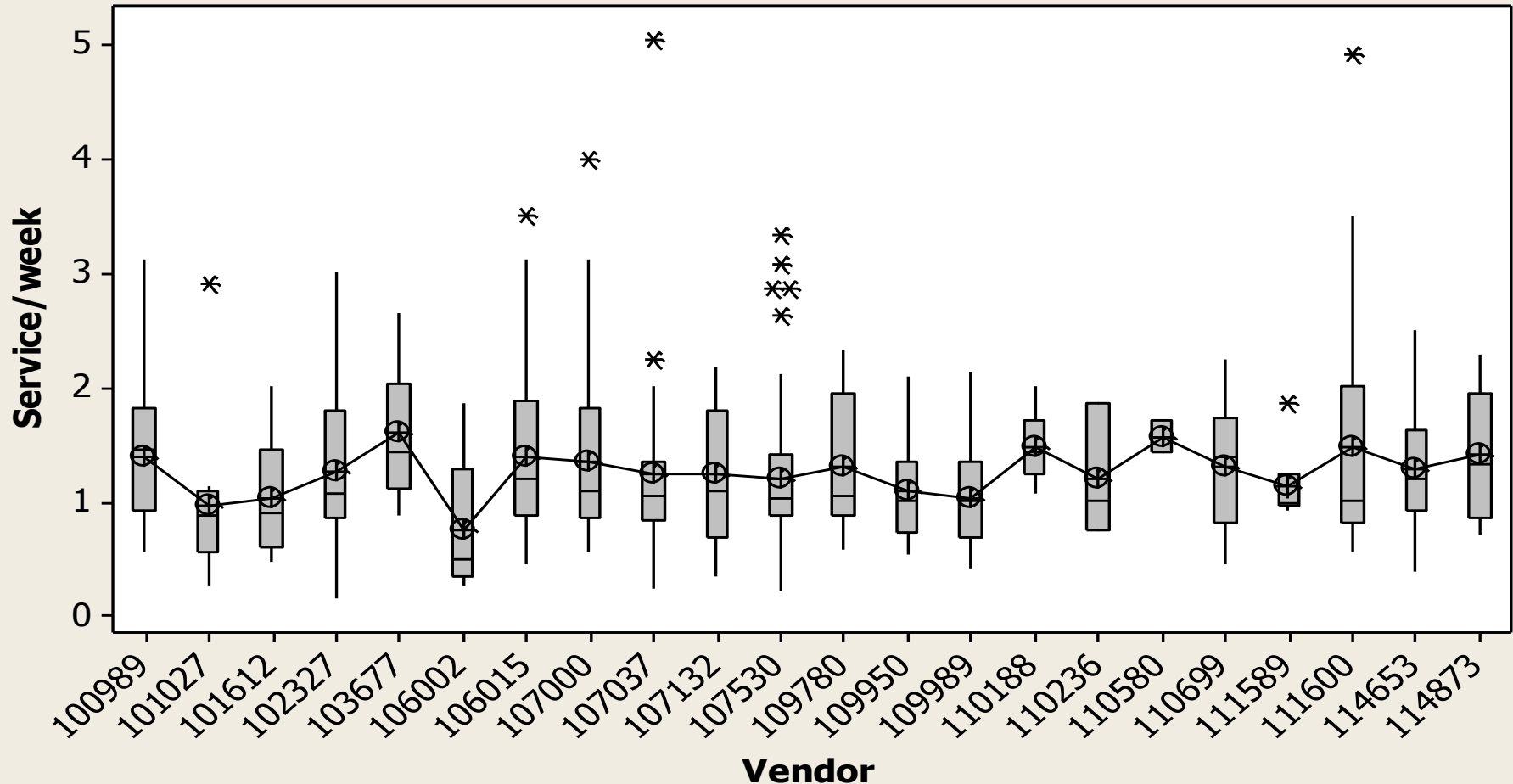
10 0.60 1.20 1.80 2.40

10 Pooled StDev = 0.6251





Boxplot of Service/week Occupational Therapy





One-way ANOVA: Service/week versus Vendor Physical Therapy

Source	DF	SS	MS	F	P
Vendor	20	20.882	1.044	3.03	0.000
Error	700	241.187	0.345		
Total	720	262.069			

S = 0.5870 R-Sq = 7.97% R-Sq(adj) = 5.34%

Individual 95% CIs For Mean Based on Pooled StDev

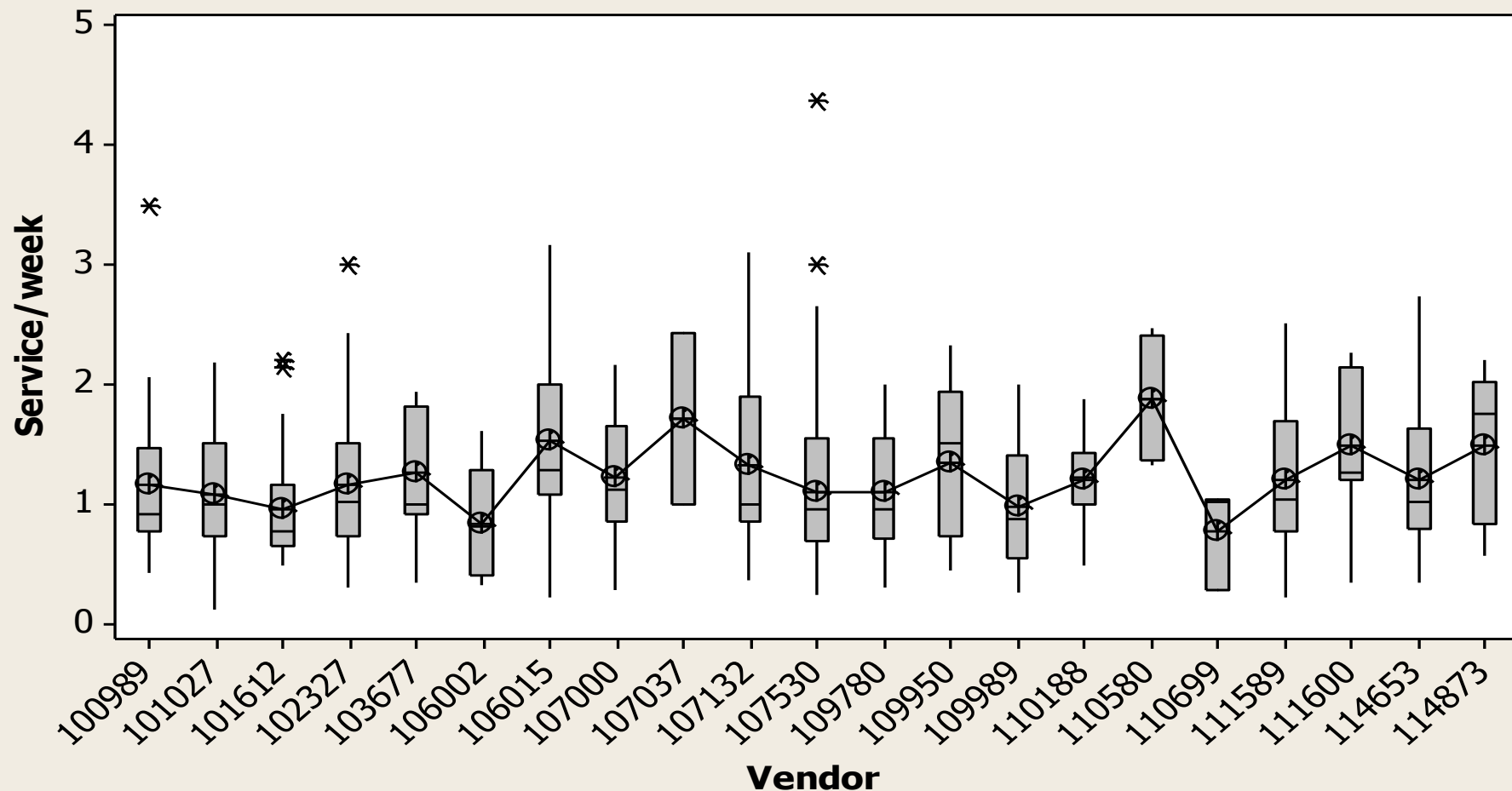
Level	N	Mean	StDev	Lower CI	Upper CI
100989	36	1.1528	0.6118	(-*)	(*)
101027	35	1.0769	0.5271	(-*)	(*)
101612	29	0.9617	0.4593	(-*)	(*)
102327	88	1.1531	0.5550	(*)	(*)
103677	9	1.2578	0.5457	(-*)	(*)
106002	5	0.8380	0.4948	(-*)	(*)
106015	91	1.5273	0.6374	(-*)	(*)
107000	37	1.2189	0.5086	(-*)	(*)
107037	2	1.7150	1.0112	(-*)	(*)
107132	56	1.3289	0.6882	(-*)	(*)
107530	148	1.1074	0.6079	(-*)	(*)
109780	10	1.1090	0.5347	(-*)	(*)
109950	16	1.3469	0.6085	(-*)	(*)
109989	17	0.9800	0.5349	(-*)	(*)
110188	14	1.2029	0.3534	(-*)	(*)
110580	4	1.8850	0.5584	(-*)	(*)
110699	3	0.7833	0.4274	(-*)	(*)
111589	37	1.2103	0.5653	(-*)	(*)
111600	11	1.4955	0.6170	(-*)	(*)
114653	62	1.2037	0.5831	(-*)	(*)
114873	11	1.4818	0.6017	(-*)	(*)

Pooled StDev = 0.5870





Boxplot of Service/week Physical Therapy

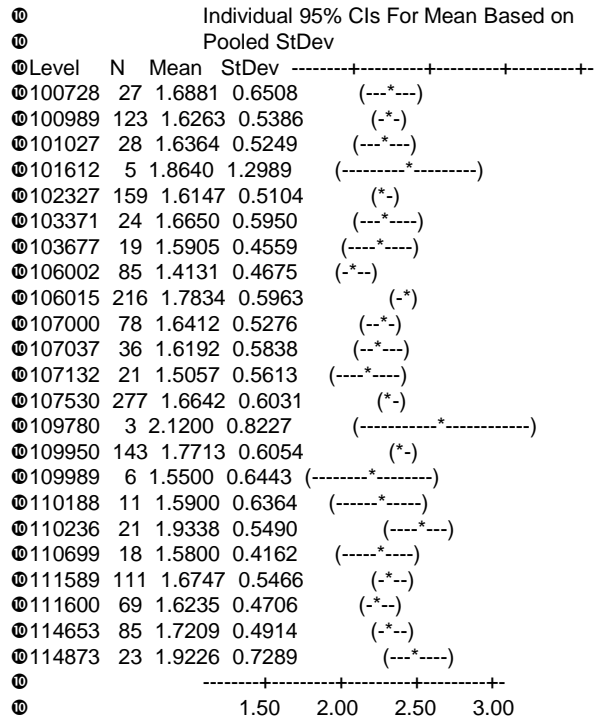




One-way ANOVA: Service/week versus Vendor Speech Language Therapy

Source	DF	SS	MS	F	P
Vendor	22	15.866	0.721	2.27	0.001
Error	1565	496.859	0.317		
Total	1587	512.726			

S = 0.5635 R-Sq = 3.09% R-Sq(adj) = 1.73%

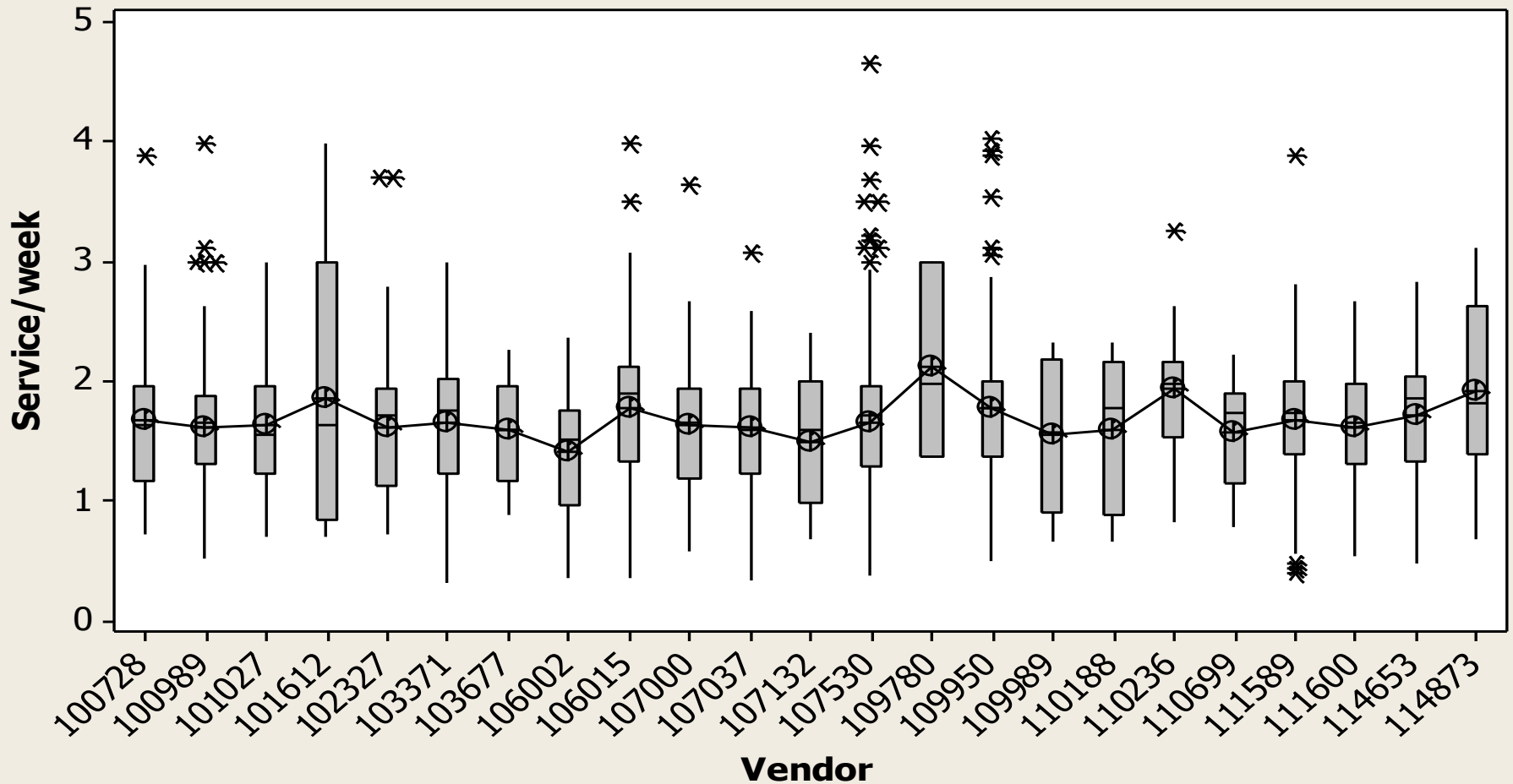


Pooled StDev = 0.5635





Boxplot of Service/week Speech Language



STATISTICAL ANALYSIS



One-way ANOVA: Service/week versus Vendor Special Instruction

Source	DF	SS	MS	F	P
Vendor	20	102.894	5.145	9.42	0.000
Error	640	349.620	0.546		
Total	660	452.514			

S = 0.7391 R-Sq = 22.74% R-Sq(adj) = 20.32%

Individual 95% CIs For Mean Based on Pooled StDev

Level	N	Mean	StDev	Lower CI	Upper CI
100989	66	1.3242	0.7308	(-*)	
101027	28	1.5829	0.7479	(--*)	
101612	3	0.7900	0.5892	(-----*)	
102327	62	1.1994	0.5055	(-*)	
103677	2	0.9250	0.6010	(-----*)	
106002	28	1.2636	0.7483	(--*)	
106015	54	1.0591	0.4416	(-*)	
107000	29	1.0286	0.3633	(--*)	
107037	25	1.2580	0.6010	(--*)	
107132	92	1.0843	0.6232	(-*)	
107530	75	1.0320	0.6108	(*)	
109950	57	1.9996	1.0224	(-*)	
109989	20	1.8480	0.8565	(--*)	
110188	16	1.8019	0.7908	(---*)	
110236	3	1.4400	0.3439	(-----*)	
110580	2	2.5550	0.1344	(-----*)	
110699	11	2.7345	1.9206	(---*)	
111589	16	1.2050	0.6750	(---*)	
111600	27	2.1800	1.1464	(--*)	
114653	40	1.1980	0.6884	(-*)	
114873	5	1.6360	0.9880	(-----*)	

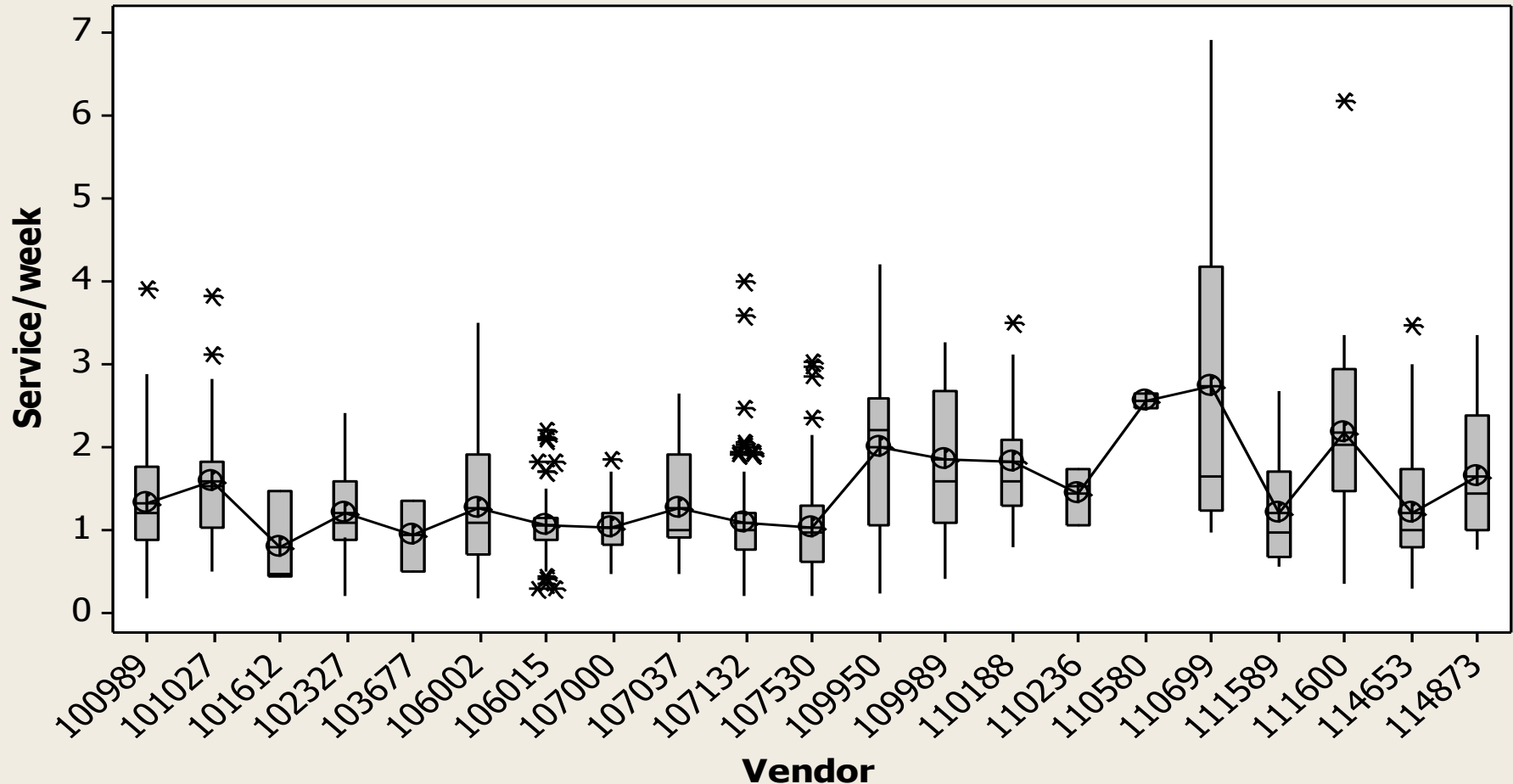
0.0 1.0 2.0 3.0

Pooled StDev = 0.7391





Boxplot of Service/week Special Instruction



WHAT SOLUTIONS WERE SELECTED?



The Team developed a plan to implement Programmatic changes designed to increase Parent involvement:

Policy and Procedures

1. Develop Philosophy- Parents are Primary Interventionists. ***Completed***
2. Revise Policy and Procedures. ***Target 12/09***
3. Develop Bibliography of Reference Material.
Completed. Will be updated as needed.





Form Training Committee- made up of agency reps, county staff and parents. ***In place Jan 09.***

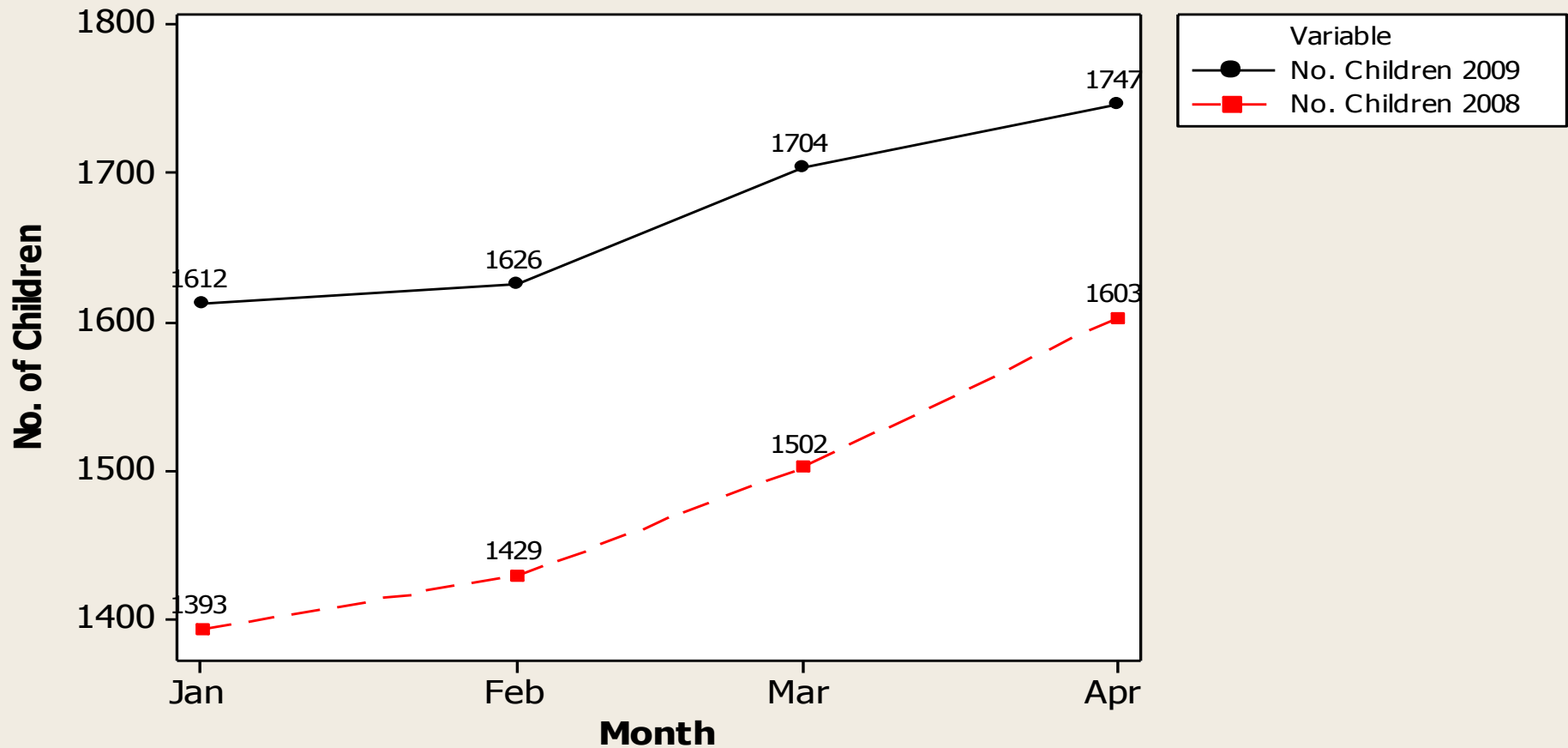
1. Develop Training Handbook. ***3 sections out of 6 in process. Goal is complete by 12/09.***
2. Develop strategy to train county staff and agency staff. ***Completed.***
3. Roll out training sessions. ***Underway and on-going.***





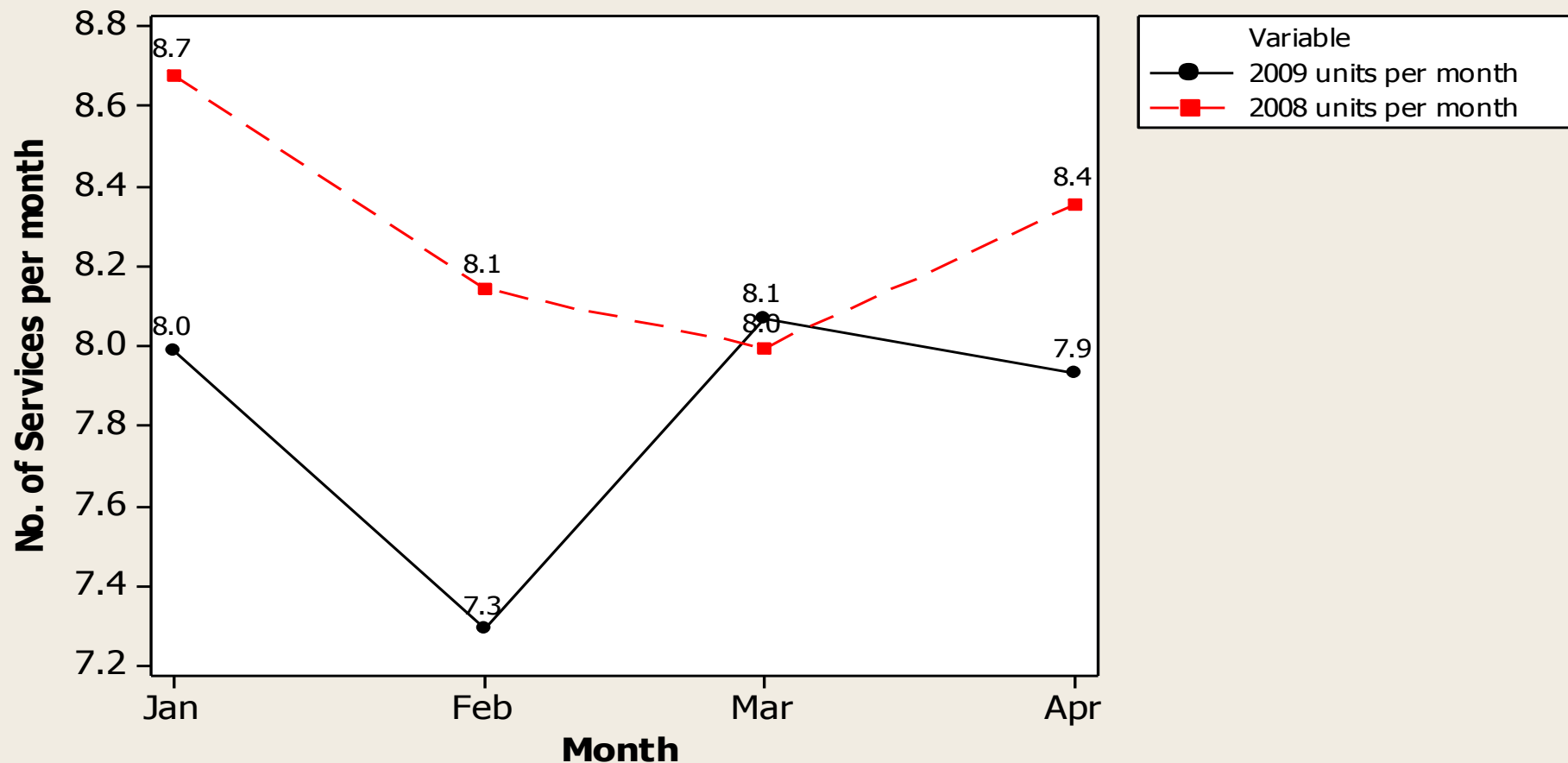
Early Intervention Program

No. of Children in Program



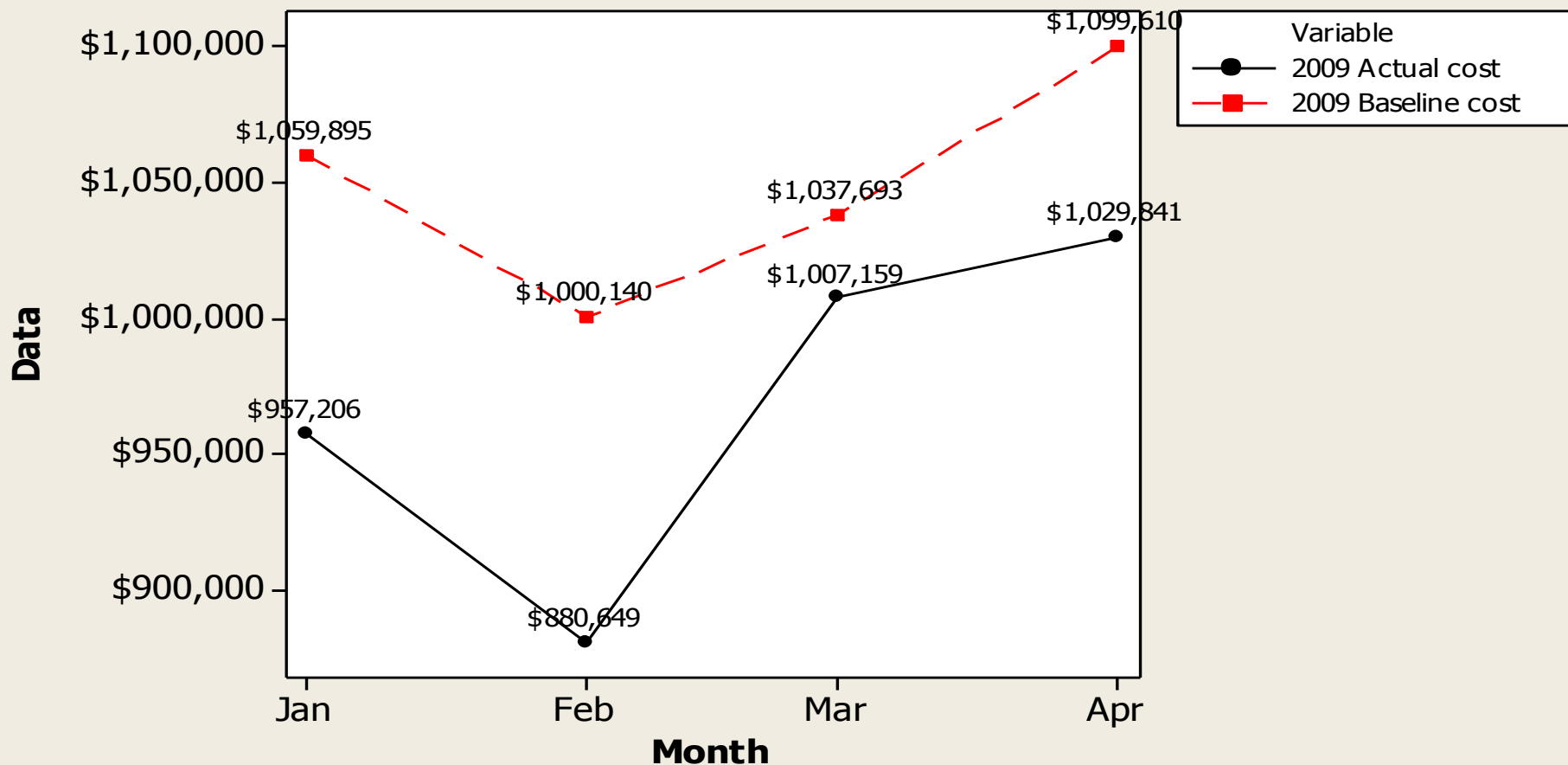


Early Intervention Program
2009 Average Services per month - All Services



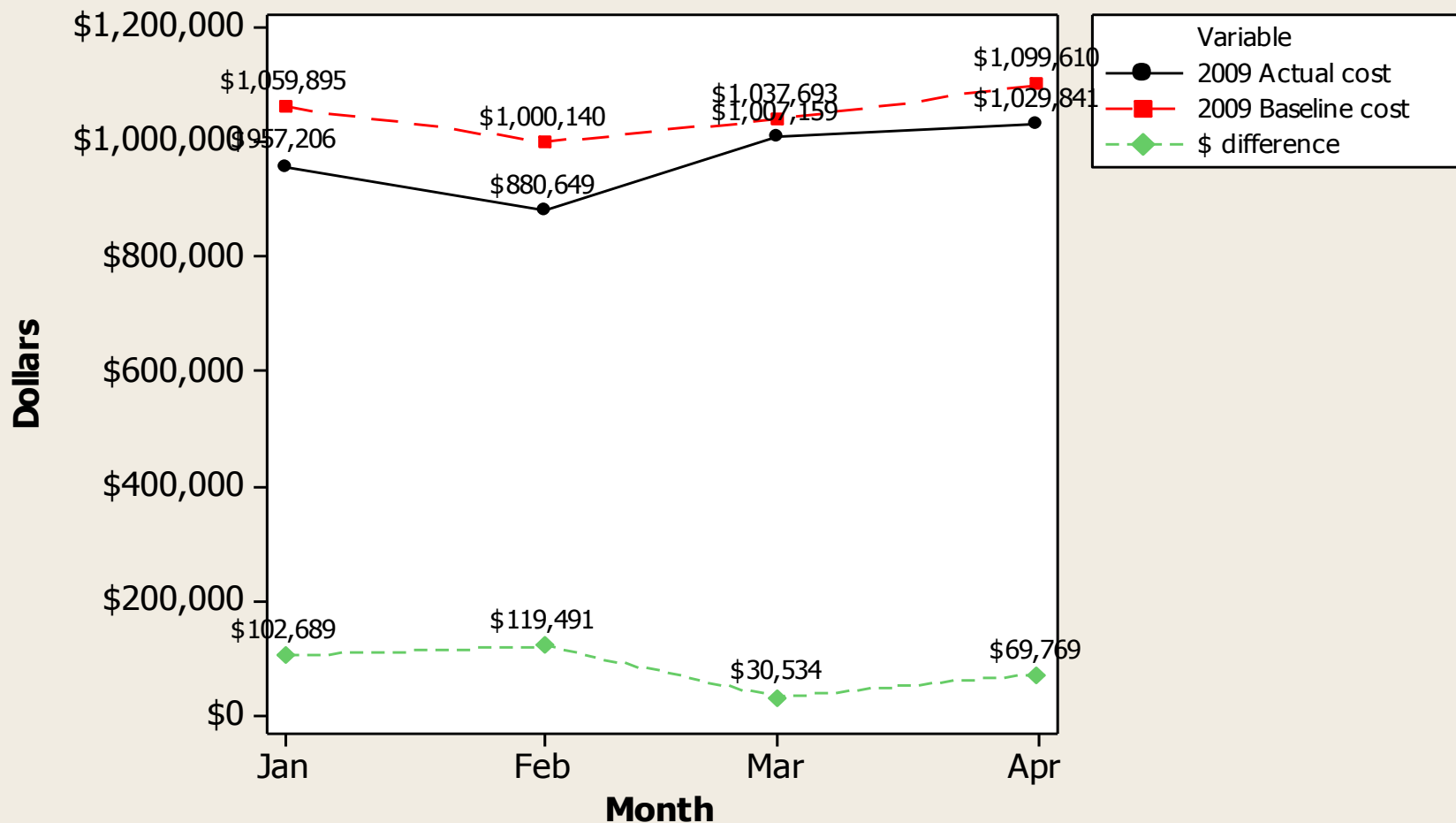


Early Intervention Program
2009 expenditures compared to 2009 Baseline





Early Intervention Program





Initial Project Target

Decrease annual growth in expenditures from 12% to 8% (in net dollars)

Annual Savings:

County	\$128,342
State, Medicaid and Insurance	\$299,658
Total	\$428,000





Based on January – April 2009, actual expenses were lower than projected expenses by \$322,483. Annualizing this results in savings of:

County	\$290,235
State, Medicaid and Insurance	\$677,214
Total	\$967,449



TRANSITION ACTION PLAN



Actions Required for Completion

1. Implement Amendment Tracking System
2. Satisfaction Surveys
3. Control Phase Tracking
4. Look at Transition Roll Rate (EI to Preschool)
5. Look at Discharge Rate (EI out)
6. Determine if Pre-K Program is impacted
7. Complete Training Handbook
8. Continue Training Sessions

Action Owner

Martin
Martin
Sweeney, Gould
O'Meara
O'Meara
Martin
Martin, O'Meara
Martin, O'Meara

Time Frame

June 09
Aug 09
on going
Dec 09
Dec 09
Jul 10
Dec 09
Dec 10



SIX SIGMA TOOLS USED



Define	Measure	Analyze	Improve	✓ Control
<ul style="list-style-type: none"> ✓ Problem Statement ✓ Macro Map ✓ Identify Customers ✓ Project Scope ✓ Primary Metric <input type="checkbox"/> Secondary Metric <input type="checkbox"/> Consequential Metric ✓ Baseline Data <input type="checkbox"/> Entitlement ✓ Objective Statement ✓ Financial Estimates ✓ Non-financial Benefits ✓ Team Members 	<ul style="list-style-type: none"> ✓ SIPOC Diagram ✓ Process Flow Diagram <input type="checkbox"/> Value Analysis/ Muda <input type="checkbox"/> Detailed Flow (I/O) <input type="checkbox"/> Measurement System Analysis <input type="checkbox"/> Capability Analysis <input type="checkbox"/> Short Term Capability <input type="checkbox"/> Long Term Capability ✓ Data Collection <input type="checkbox"/> Process Monitoring <input type="checkbox"/> Lean Opportunities <input type="checkbox"/> C & E Fishbone <input type="checkbox"/> C & E Matrix 	<ul style="list-style-type: none"> ✓ Potential X's ✓ Graphical Analysis <input type="checkbox"/> Hypothesis Testing ✓ Means <input type="checkbox"/> Variance <input type="checkbox"/> Proportions ✓ ANOVA <input type="checkbox"/> Regression Analysis <input type="checkbox"/> FMEA ✓ ID Critical X's ✓ Quick Improvements <input type="checkbox"/> Lean Improvements ✓ Process Tracking 	<ul style="list-style-type: none"> <input type="checkbox"/> Regression Analysis <input type="checkbox"/> DOE Planning <input type="checkbox"/> Screening DOEs <input type="checkbox"/> Quantifying DOEs <input type="checkbox"/> Optimizing DOEs <input type="checkbox"/> Verify Critical X's <input type="checkbox"/> Y = F(x) <input type="checkbox"/> Optimization ✓ Generate Solutions ✓ Select Solutions <input type="checkbox"/> Pilot Trials <input type="checkbox"/> Capability Analysis 	<ul style="list-style-type: none"> <input type="checkbox"/> Control Methods ✓ Control Plans <input type="checkbox"/> Poka-Yoke <input type="checkbox"/> SPM – Monitor Y <input type="checkbox"/> SPC – Control X's <input type="checkbox"/> OCAP <input type="checkbox"/> Update FMEA ✓ Project Transition Action Plans ✓ Update Financial Benefits ✓ Final report ✓ Close Project
<input type="checkbox"/> Define Review	<input type="checkbox"/> Measure Review	<input type="checkbox"/> Analyze Review	<input type="checkbox"/> Improve Review	<input type="checkbox"/> Control Review



